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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,956	01/09/2002	Masaki Yamamoto	9281-4260	6363

7590 08/03/2004

Brinks Hofer Gilson & Lione
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Chicago, IL 60610

EXAMINER	
TRAN, TRANG U	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 08/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,956	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Trang U. Tran	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5 and 6* is/are rejected.

7)☒ Claim(s) *2 and 4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (Fig. 3, pages 1-8 of the specification) in view of Yamamoto (US Patent No. 6,483,552 B1).

In considering claim 1, the admitted prior art (Fig. 3, pages 1-8 of the specification) discloses all the claimed subject matter, note 1) the claimed a combination tuner (Fig. 3, pages 1-8 of the specification) comprising: a first signal receiving unit to receive a television signal using an externally connected antenna is met by the external antenna 31 which receives a television signal (Fig. 3, page 2, line 25 to page 3, line 11), 2) the claimed a second signal receiving unit to receive an FM signal using an internal antenna is met by the internal antenna 32 which receives an FM signal (Fig. 3, page 2, line 25 to page 3, line 11), 3) the claimed a signal selecting unit to select reception signals of said first signal receiving unit and a reception signal of said second signal receiving unit is met by the television signal selection stage 35 and the FM signal selection stage 36 (Fig. 3, page 2, line 25 to page 4, line 15), 4) the claimed a radio-frequency selecting and amplifying unit to select and amplify the resulting reception signal is met by the radio-frequency amplifier stage 38 (Fig. 3, page 4, line 27

to page 7, line 27), 5) the claimed a frequency converting unit to convert the amplified radio-frequency signal into an intermediate frequency signal is met by the radio-frequency tuner stage 39 where a required channel signal is selected, and is then mixed with the local oscillation signal output from the local oscillator 41 by the frequency mixer stage 40 for conversion into an intermediate frequency signal (Fig. 3, page 5, lines 4-17 and page 7, lines 18-27), 6) the claimed an intermediate frequency to select and amplify unit for selecting and amplifying the intermediate frequency signal is met by the IF amplifier 43 which amplifies the intermediate frequency to a predetermined level (Fig. 3, page 5, lines 4-17 and page 7, line 18 to page 8, line 7), and 7) the claimed a switching circuit to switch selection of the television signal or the FM signal is met by the switching circuit 45 which switches selection of the television signal or the FM signal (Fig. 3, page 3, lines 12-21 and page 5, line 17 to page 6, line 8).

However, the admitted prior art (Fig. 3, pages 1-8 of the specification) explicitly does not disclose: 1) the claimed a first signal receiving unit for receiving a television signal and an FM signal, and 2) the claimed a switching circuit according to three-mode band data, wherein said switching circuit includes three transistors which are selectively turned on and off so that one of the television signal from said first signal receiving unit, the FM signal from said second signal receiving unit, and the FM signal from said first signal receiving unit is selected according to the mode of the band data.

Yamamoto teaches that:

1) The VHF band television signal TV and the FM broadcast signal FM are supplied to the VHF tuner 1, **the VHF tuner comprises an FM switching circuit 1a for**

performing switching between the VHF band television signal TV and the FM broadcasting signal FM and receiving the switched signal, a tuning circuit 1b, a mixer 1c, a local oscillator 1d, and the like and an intermediate frequency signal IF is outputted from the mixer 1c (Fig. 1, col. 3, line 56 to col. 4, line 16). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the tuner for receiving the TV signal and the FM signal as taught by Yamamoto into the admitted prior art's system in order to provide a television tuner capable of receiving both of a television broadcast and an FM radio broadcast (col. 2, lines 64-66 of Yamamoto).

2) As illustrated in Fig. 2, **the switching voltage generating circuit 4b has four switching transistors Q1, Q2, Q3 and Q4** and a power source voltage B is applied to their collectors, their emitters serve as output ports P1, P2, P3 and P4 and output switching voltages BS1, BS2, BS3 and BS4, respectively, in correspondence with the reception band of the television signal or the FM signal of the selected station (Figs. 1 and 2, col. 4, line 60 to col. 5, line 64). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the switching voltage as taught by as taught by Yamamoto into the admitted prior art's system in order to provide the television tuner which has the frequencies can be easily changed without changing the construction of the closed loop in the PLL circuit by the switching voltage for switching the reception band (col. 6, lines 35-50 of Yamamoto).

In considering claim 3, the admitted prior art (Fig. 3, pages 1-8 of the specification) discloses all the claimed subject matter, note 1) the claimed a

combination tuner (Fig. 3, pages 1-8 of the specification) comprising: a first signal receiving unit to receive a television signal using an externally connected antenna is met by the external antenna 31 which receives a television signal (Fig. 3, page 2, line 25 to page 3, line 11), 2) the claimed a second signal receiving unit to receive an FM signal using an internal antenna is met by the internal antenna 32 which receives an FM signal (Fig. 3, page 2, line 25 to page 3, line 11), 3) the claimed a signal selecting unit to select reception signals of said first signal receiving unit and a reception signal of said second signal receiving unit is met by the television signal selection stage 35 and the FM signal selection stage 36 (Fig. 3, page 2, line 25 to page 4, line 15), 4) the claimed a radio-frequency selecting and amplifying unit to select and amplify the resulting reception signal is met by the radio-frequency amplifier stage 38 (Fig. 3, page 4, line 27 to page 7, line 27), 5) the claimed a frequency converting unit to convert the amplified radio-frequency signal into an intermediate frequency signal is met by the radio-frequency tuner stage 39 where a required channel signal is selected, and is then mixed with the local oscillation signal output from the local oscillator 41 by the frequency mixer stage 40 for conversion into an intermediate frequency signal (Fig. 3, page 5, lines 4-17 and page 7, lines 18-27), 6) the claimed an intermediate frequency to select and amplify unit for selecting and amplifying the intermediate frequency signal is met by the IF amplifier 43 which amplifies the intermediate frequency to a predetermined level (Fig. 3, page 5, lines 4-17 and page 7, line 18 to page 8, line 7), 7) the claimed a switching circuit to switch selection of the television signal or the FM signal is met by the switching circuit 45 which switches selection of the television signal or the FM signal (Fig. 3, page

3, lines 12-21 and page 5, line 17 to page 6, line 8), and 8) the claimed such that an automatic gain control voltage which is supplied to said radio-frequency selecting and amplifying units is attenuated when the FM signal from said second signal receiving unit is selected is met by the automatic gain control voltage supply terminal 47 which controls the gain of radio-frequency amplifier stage 38 so as to maximized for selection and output of FM signal (Fig. 3, page 5, lines 18-24 and page 7, lines 13-27).

However, the admitted prior art (Fig. 3, pages 1-8 of the specification) explicitly does not disclose: 1) the claimed a first signal receiving unit for receiving a television signal and an FM signal, and 2) the claimed a switching circuit according to three-mode band data, wherein said switching circuit includes three transistors which are selectively turned on and off such that one of the television signal from said first signal receiving unit, the FM signal from said second signal receiving unit, and the FM signal from said first signal receiving unit is selected according to the mode of the band data.

Yamamoto teaches that:

1) The VHF band television signal TV and the FM broadcast signal FM are supplied to the VHF tuner 1, **the VHF tuner comprises an FM switching circuit 1a for performing switching between the VHF band television signal TV and the FM broadcasting signal FM** and receiving the switched signal, a tuning circuit 1b, a mixer 1c, a local oscillator 1d, and the like and an intermediate frequency signal IF is outputted from the mixer 1c (Fig. 1, col. 3, line 56 to col. 4, line 16). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the tuner for receiving the TV signal and the FM signal as taught by

Yamamoto into the admitted prior art's system in order to provide a television tuner capable of receiving both of a television broadcast and an FM radio broadcast (col. 2, lines 64-66 of Yamamoto).

2) As illustrated in Fig. 2, **the switching voltage generating circuit 4b has four switching transistors Q1, Q2, Q3 and Q4** and a power source voltage B is applied to their collectors, their emitters serve as output ports P1, P2, P3 and P4 and output switching voltages BS1, BS2, BS3 and BS4, respectively, in correspondence with the reception band of the television signal or the FM signal of the selected station (Figs. 1 and 2, col. 4, line 60 to col. 5, line 64). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the switching voltage as taught by as taught by Yamamoto into the admitted prior art's system in order to provide the television tuner which has the frequencies can be easily changed without changing the construction of the closed loop in the PLL circuit by the switching voltage for switching the reception band.

In considering claim 5, the admitted prior art (Fig. 3, pages 1-8 of the specification) discloses all the claimed subject matter, note 1) the claimed wherein said radio-frequency selecting and amplifying unit includes an FM trap circuit, and the intermediate frequency selecting and amplifying unit includes an intermediate frequency bandwidth switching circuit and a gain setting circuit is met by the FM trap circuit 37, the IF switching circuit 42, the IF amplifier 43 and the gain setting circuit 44 (Fig. 3, page 2, line 26 to page 8, line 12), 2) the claimed in which: when a television signal is selected, the FM trap circuit is active, the intermediate frequency bandwidth switching circuit is

set at the intermediate frequency bandwidth of the television signal, and the gain setting circuit is set at a large gain is met by the FM trap circuit 37, the IF switching circuit 42, and the gain setting circuit 44 (Fig. 3, page 4, lines 16-26), and 3) the claimed when an FM signal is selected, the FM trap circuit is inactive, the intermediate frequency bandwidth switching circuit is set at the intermediate frequency bandwidth of the FM signal, and the gain setting circuit is set at a low gain is met by the FM trap circuit 37, the IF switching circuit 42, and the gain setting circuit 44 (Fig. 3, page 7, lines 4-12).

In considering claim 6, the admitted prior art (Fig. 3, pages 1-8 of the specification) discloses all the claimed subject matter, note 1) the claimed wherein said radio-frequency selecting and amplifying unit includes an FM trap circuit, and the intermediate frequency selecting and amplifying unit includes an intermediate frequency bandwidth switching circuit and a gain setting circuit is met by the FM trap circuit 37, the IF switching circuit 42, the IF amplifier 43 and the gain setting circuit 44 (Fig. 3, page 2, line 26 to page 8, line 12), 2) the claimed in which: when a television signal is selected, the FM trap circuit is active, the intermediate frequency bandwidth switching circuit is set at the intermediate frequency bandwidth of the television signal, and the gain setting circuit is set at a large gain is met by the FM trap circuit 37, the IF switching circuit 42, and the gain setting circuit 44 (Fig. 3, page 4, lines 16-26), and 3) the claimed when an FM signal is selected, the FM trap circuit is inactive, the intermediate frequency bandwidth switching circuit is set at the intermediate frequency bandwidth of the FM signal, and the gain setting circuit is set at a low gain is met by the FM trap circuit 37, the IF switching circuit 42, and the gain setting circuit 44 (Fig. 3, page 7, lines 4-12).

Allowable Subject Matter

3. Claims 2 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kikuchi (US Patent No. 6,683,656 B1) discloses video intermediate frequency processing apparatus.

Endo (US Patent No. 6,344,881 B1) discloses television tuner capable of receiving CATV broadcasting signal and ground wave FM broadcasting signal.

Saito (US Patent No. 6,243,567 B1) discloses television tuner, tuner integrated circuit and method of controlling television tuner.

Yamamoto et al. (US Patent No. 6,108,050) disclose television tuner.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (703) 305-0090. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT
July 24, 2004

TRANG TRAN
PATENT EXAMINER